

connected to the switch fabric; and

means for using the configuration topology information and the information obtained from the switch fabric to establish a logical link between a port on the storage system and a second port on a second storage system so that data residing on a device group supported by the port and a corresponding, mirrored device group supported by the second port can be exchanged between the data storage system and the second data storage system.

16. The apparatus of claim 15, wherein the configuration topology information comprises configuration topology tables.

17. The apparatus of claim 16, wherein the configuration topology tables further comprise a device groups table identifying the device groups supported by the data storage system and providing for each of the device groups a pointer to one of the other data storage systems that serves the device group.

18. The apparatus of claim 17, wherein the configuration topology tables further comprise a remote systems table specifying by serial number each one of the other data storage systems that is pointed to by the pointer in the device groups table.

19. The apparatus of claim 18, wherein the configuration topology tables further comprise a processors table identifying by a unique name each processor in the data storage system and providing an associated pointer to any one or more of the device groups supported by such processor.

20. The apparatus of claim 19, wherein the means for determining comprises:  
means for receiving from the switch fabric a list of the ports of the other data storage systems, the list including for each of the ports a corresponding World Wide Name, the World Wide Name including unique names for processors and a serial number for the data storage system with which the port is associated.

the World Wide Name including unique names for processors and a serial number for the data storage system with which the port is associated.

21. The apparatus of claim 20, wherein the means for using comprises:  
means for determining if any of the device groups are served by the World Wide Name.

22. The apparatus of claim 21, wherein the means for using further comprises:  
means for determining if a serial number of one of the storage systems pointed to by any of the device groups matches the serial number included in the World Wide Name;  
means for reading the unique processor name that is associated with the pointer that points to the matched device group; and  
means for writing to a new link entry in a link table pointers to the unique processor name and the device group as well as a state value of one.

23. The apparatus of claim 22, wherein the means for using further comprises:  
means for performing a single link discovery for the port and the port having the World Wide Name.

24. The apparatus of claim 23, wherein the ports are state machines and wherein the single link discovery establishes the logical link when each of the state machines advances to a '0xFF' state from a '1' state.

25. The apparatus of claim 24, wherein means for performing the single link discovery comprises means for exchanging between the ports data from the respective configuration topology tables of the ports to determine if the data matches.

26. The apparatus of claim 15, wherein the switch fabric comprises a Fibre Channel switch fabric.

27. A system comprising:

an arrangement of storage systems each adapted to control at least one group of devices that are supported in a mirrored configuration with a corresponding group of devices controlled by one of the other storage systems;

for each device group and corresponding device group, first ports associated with the device group and second ports associated with the corresponding device group; and

one of the first ports being connected to at least one of the second ports so that data may be exchanged between the first and second ports for each device group and corresponding device group.

28. In a remote, mirrored arrangement of data storage systems, a data storage system comprising:

a port adapted to control at least one device group;

A<sub>1</sub> the port being further adapted to connect to ports in the other data storage systems via a switch element; and

the port being configured to use the switch element to link the port to a selected one of the ports controlling a second device group that mirrors the device group controlled by the port.

29. In a remote data mirroring arrangement of data storage systems, a method of connecting ports on a data storage system to ports on other data storage systems comprising:

associating ports with a group of devices that are supported in a mirrored configuration with a corresponding group of devices with which ports on one of the other data storage systems are associated; and

connecting one of the ports associated with the device group to at least one of the ports associated with the corresponding device group so that data may be exchanged between the ports associated with the device group and corresponding device group.

30. In a remote data mirroring arrangement of data storage systems, a method of connecting ports on a data storage system to ports on other data storage systems comprising:
- configuring a port to control a device group; and
  - linking the port to a selected one of the ports controlling a second device group that mirrors the device group controlled by the port.--
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